KINDER MORGAN
ENERGY PARTNERS, L.P.

January 9, 2009

Via Federal Express

Chris Hoidal, P.E.
Director, Western Region
PHMSA Pipeline Safety Office
12300 W. Dakota Ave., Suite 110
Lakewood, CO 80228

RE: Notice of Probable Violation
CPF 5-2008-5045

Dear Mr. Hoidal

This letter is written in response to the above referenced Notice of Probable Violation (NOPV) and Compliance Order (CO) dated Dec 3, 2008 and received by Kinder Morgan (KM) on December 10, 2008. This Enforcement Action alleges that KM did not adequately perform a comprehensive root cause analysis and/or lesson learned of the Galletti Way release that occurred on SFPP L.P. Line Section (LS) 13 on October 2, 2007. SFPP L.P. is an Operating Partnership of Kinder Morgan Energy Partners, L.P.

Specifically PHMSA alleges that KM did not conduct:

- A formal investigation of the accident to identify the root causes that contributed to the release.
- A formal evaluation of the leak detection capability as a result of the release.
- An evaluation of their emergency flow restricting device (EFRD) capability as a result of the release.
- A pressure cycle fatigue analysis (PCFA) as a result of the release.

We respectfully disagree with your findings that *"Kinder Morgan did not take adequate steps to perform a comprehensive root cause analysis and lessons learned of the (this) release as specified in Section 3.9 of Kinder Morgan's Incident Investigation and Reporting Procedures"* pursuant to 49 CFR Part 195, 402.(C) 5.

KM did conduct a comprehensive investigation of the release and determined the root cause to be hydrogen stress cracking at a localized hard spot, which had been present since manufacturing of the seamless pipe.

The investigation included a review of the operating conditions just prior to the release, the Operator on Duty's actions, metallurgical analysis of the failed pipe specimen, and the subsequent emergency response. Representatives of Automation Engineering, Pipeline Engineering, Risk Engineering, Operations, Maintenance, Pipeline Engineering, Products Movement (Logistics), Safety, Environmental Remediation, and Compliance

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Codes and Standards participated in various aspects of the investigation. The findings of each element of the investigation were communicated to me, as Vice President Operation and Engineering.

Section 3.10, "Failure Investigation", of the same procedure referenced in the NOPV (L-O&M 0159) provides that "...a member of management in consultation with EHS and Legal Personnel (if applicable) will determine to what extent an investigation is required and who will conduct the investigation. An investigation team can be formed from either local management personnel or the investigation team identified in Table 2 of L-O&M 159; furthermore, this section also provides for a written report. In this instance, as the Vice President of Operations and Engineering, I made the decision regarding the extent of the investigation and adequacy of the written report.

As you are aware, we met with PHMSA representatives on several occasions during this investigation, during the initial on-site investigation, during the metallurgical examination of the failed specimen, during the records review and discussion of the results of Kinder Morgan's investigation in Orange CA as well as PHMSA witnessing the field investigation of the additional hard spots found on LS-13. To our knowledge we provided all of the documentation and information requested by the PHMSA representatives during each of these meetings and do not understand the technical basis for this enforcement action.

We are providing the following additional information for your consideration to demonstrate KM's compliance with 49 CFR 195.402 (C) 5 and allay PHMSA's concerns about the efficiency of KM's investigation of the Galletti Way release and/or justification of why we believe certain elements listed in the CO are not technically justified, In the event that PHMSA continues to believe that KM is in violation of 49 CFR 195. 402 (c) 5, we respectively reserve our right to request a hearing.

For your convenience, we list each element noted in the NOPV and subsequently Compliance Order, followed by KM's response:

Formal investigation of the accident to identify the root causes that contributed the release

As previously stated, Kinder Morgan conducted an investigation of the release and the investigation concluded that the root cause of this failure was due to hydrogen stress cracking at a localized hard spot present since manufacturing of the seamless pipe. The investigation began immediately after notification of the release. SCADA records, including the event logs were reviewed to determine the operating conditions prior to, during and following the event, the actions taken by the operator on duty, both of which were included in a chronological sequence of events that was used in further analysis of the cause of this release and subsequent emergency response. This review did not disclose any abnormal operating condition, as defined in 49 CFR 195.402 (d) (1), i.e., unintended closure of valves or shutdowns; increase or decrease in pressure or flow rate outside normal operating limits; loss of communications; operation of any safety device; or any other malfunction of a component, deviation from normal operation, or personnel error which could have contributed to this event. Moreover, the investigation revealed no indication that KM leak detection capabilities operated other than as expected.

As a reminder, the pipeline was in the process of undergoing a normal shutdown to facilitate the removal and inspection of a meter at Rocklin Station when KM received the call that there was product on the ground at Galletti Way. Given the terrain, the Rocklin to Reno system, of which LS-13 is a segment, traverses Donner Summit and is subject to significant elevation changes on either side of the summit. As such, the normal shutdown process includes increasing the set point of the control valve at Reno to pack or capture pressure on the downhill side of Donner summit to ensure that the summit is covered within predetermined pressure limits. The release occurred during this transition from steady state to static conditions as the pressure was building in the segment which failed. The findings of this aspect of the investigation did not disclose any indications or factors: including actions of the Operator on duty at Rocklin or Reno, or abnormal operating conditions, including overpressure that might have contributed to the root cause of this event.

In addition to the independent 3rd party finding metallurgical that the cause of this failure was hydrogen stress cracking at a localized hard spot, present since manufacturing of the seamless pipe, the metallurgical report also states that there was no evidence of fatigue. (An-Tech Laboratories Inc Report dated November 28, 2007, which was previously provided to PHMSA).

Based on this root cause finding, KM reviewed Engineering and Construction records of other SFPP pipelines installed during the period of construction of LS-13 to determine other locations where seamless pipe manufactured by Siderca Mannesmann of Brazil was installed. In addition to LS-13, two other line sections were identified that contained segments of seamless Siderca Mannesmann pipe; LS-11 from Newcastle to Clipper gap and LS-55, from Reno to Fallon Naval Air Station. Kinder Morgan performed in-line Inspections capable of identifying hard spots on all three Line Sections. There were no hard spots found on LS-11 or LS-55; four locations were identified as possible hard spots. These locations were subsequently excavated and non-destructively inspected. Only two of the four locations contained hard spots as identified by the NDE process, however, neither contained cracking. Both were subsequently cut out and replaced. A PHMSA representative witnessed these cut-outs.

It is Kinder Morgan's belief that our failure investigation satisfies 195. 402 (c) (5) and Section 3.9 of KM's LO&M procedure. Kinder Morgan clearly conducted a formal investigation.

A formal evaluation of the Leak detection capability as a result of the release

Kinder Morgan's investigation did not find any indication which warrants an analysis of our leak detection capabilities for this event. As previously stated, Kinder Morgan's Automation Engineering and Logistics representatives reviewed the operating conditions, SCADA data, and event logs just prior to, during and immediately following the release. There was no indication that the leak detection system performed other than expected. Moreover, Kinder Morgan believes, the leak detection capability question is moot because this release occurred during the transition from steady state to static conditions as LS-13 was in the process of being shut down when this failure occurred. However, a formal evaluation of the leak detection system was conducted five

weeks after this release as part of the routine periodic leak detection analysis required by KM's Hazardous Liquid Pipelines Integrity Management Program and Liquids O&M procedure. The Pipeline System Leak Detection Analysis was completed for the Rocklin to Reno system, which includes LS-13, on November 8, 2007.

The Pipeline System Leak Detection Analysis Sheet is attached for your review.

An evaluation of their emergency flow restricting device (EFRD) capability as a result of the release

As in the case of the leak detection capability discussed above, EFRD capability evaluations are performed when there is evidence that an EFRD is warranted, and are not automatically performed as a routine matter in all KM failure investigations. KM's investigation did not find any data that warranted an EFRD. However, KM is currently conducting an EFRD study of the LS-13 pursuant to KM's Hazardous Liquid Pipelines Integrity Management Program and LO&M. The analysis is expected to be complete January 20, 2009.

A pressure cycle fatigue analysis (PCFA) as a result of the release;

Kinder Morgan does not believe that a PCFA is technically warranted, given Root Cause and the explicit finding of the metallurgist that there was no evidence of fatigue.

Kinder Morgan is committed to operating our pipelines safely and in compliance with all applicable regulations. If you have any questions or need additional information, please contact Edward A. "Buzz" Fant at (713) 369.9454 or me at (713) 369.9152.

Sincerely,

Ronald D. McClain

Ron McClain
Vice President – Operations & Engineering
Products Pipelines
Kinder Morgan Energy Partners, L.P.

Attachment

KINDER MORGAN INC

Pipeline System Leak Detection Analysis Sheet

LS-11: 10" Rocklin – Newcastle, 6" Newcastle – Clipper Gap, 10" Clipper Gap – Colfax

LS-12: 8" Colfax – Woodchopper Springs

LS-12/13: 10" Woodchopper Springs – 10x6 Reducer

LS-13: 6" 10x6 Reducer - Reno

Include attachments as necessary. Reference attachments in appropriate provided space.
List all participants in discussion: *Mark Jensen (Manager-ORCC), Frank Villalovos (Area Manager-Chico/Rocklin), Wally Stevenson (Area Manager-Reno) Rex Miller (Director-Automation Engineering), Kelly Johnson (Op's Manager), Dale Havlu (Manager-Product Movement), Ed Hahn (Director-Product Movement)*

Date submitted to Manager of Risk Engineering: 11/8/2007

The RO-RE pipeline is divided into 2 different areas: Chico/Rocklin and Reno. The Chico/Rocklin Area Manager is responsible for the line up to Donner Lake MOV, which is between Cisco Grove Station and Woodchopper Springs, and the Reno Area Manager is responsible for Donner Lake MOV to Reno.

1 LEAK DETECTION

Indicate all types of leak detection currently in use on the pipeline segment. "X" all sections that apply and provide the requested information. Data source for interview item is shown in parenthesis.

1.1 ☒ **Visual Observation (Area Manager) – Line Rider, ROW Coordinator, O&M Technician, etc.**
Specify line rider type (truck, ATV, etc), ROW condition (visual obstructions, etc) and any ROW accessibility constraints: *Truck where accessible. Access is limited due to terrain & vegetation, a large amount of this ROW has to be walked.*
Frequency of Monitoring: *Once a week or as needed.*
Actions Required on Suspect Condition: *Visual inspection by an "Operator Qualified" (OQ) employee.*
Comments:

1.2 ☒ **Aerial Observation (Area Manager) – Line Flyer**
Frequency of Monitoring: *Once a week or at least 26 times per year.*
Actions Required on Suspect Condition: *Investigate further / closer using the Line Rider, Lead Operator, Area Manager or other "Operator Qualified" (OQ) employee.*
Comments:

1.3 ☐ **External Gas/Vapor/CO2 Detection Sensors (Area Manager / SCADA Group)**
Specify type, locations, detection sensitivity, and shutdown thresholds.
Frequency of Monitoring:
Actions Required on Suspect Condition:
Comments:

1.4 ☒ **Over/Short Reports (Products Movement)**
Frequency of Monitoring:
Hourly, Weekly and Monthly (See section 2.8 for more details)

Actions Required on Suspect Condition:

Hourly:

(1) Controller will verify validity of O/S data (2) If Suspect Condition still exists, Controller will shutdown the pipeline for a pressure test (3) If suspect condition still exists after pressure test, the Manager of the Control Center or Products Movement Project Manager will be notified. The Manager of the Control Center or Products Movement Project Manager is responsible for determining the proper follow up action.

The follow up action can be: (a) a pressure test (b) Dispatch of operations personnel for further investigation (c) Coordination of other personnel (i.e. Operations Manager, Regional Director, Director of Products Movement, Director of Engineering, etc.) for further action and (d) Right Of Way (ROW) patrolling by operations personnel.

Weekly and Monthly:

The Weekly and Monthly O/S Monitoring Programs are primarily designed to identify and correct mechanical (i.e. metering) and possibly clerical reasons for O/S deviations. Therefore, the Weekly and Monthly O/S Monitoring Programs support or enhance the Hourly O/S Monitoring Program. (See section 2.8 for more details)

1.5 ☒ SCADA and Computational Pipeline Monitoring (SCADA Group)

Specify applicable SCADA or CPM type(s).
Select one of the API-1130 definitions below, if appropriate, or specify and describe other type. Identify if applicable to SCADA or CPM by circling the appropriate type shown in parentheses for each definition. Minor differences from API-1130 definitions can be described in the space provided.

☐ **Line Balance (SCADA / CPM)** – Typically meter based but can be based upon tank gauges. Includes no compensation for change in pipeline inventory due to pressure, temperature, or composition.

Frequency of Monitoring:
Actions Required on Suspect Condition:
Comments:

☐ **Volume Balance (SCADA / CPM)** – Enhanced Line Balance technique with limited compensation for pipeline inventory based upon pipeline average temperature and/or pressure. Typically no density correction, however, a representative bulk modulus is used for line pack calculations.

Frequency of Monitoring:
Actions Required on Suspect Condition:
Comments:

☐ **Modified Volume Balance (SCADA / CPM)** – Enhanced Volume Balance method (meter based). Utilizes a dynamic bulk modulus to adjust line pack. The dynamic bulk modulus is a composite value based upon the bulk moduli of the various components of the pipeline line fill as a function of line fill percentage.

Frequency of Monitoring:
Actions Required on Suspect Condition:

Comments:

☐ **Compensated Mass Balance (SCADA / CPM)** – A further enhancement of the Modified Volume Balance technique. The pipeline is divided into a pre-defined number of segments based upon the availability of instrumentation and the desired level of sensitivity. Pressure and temperature profiles are modeled over segments to provide enhanced data for line pack calculations. Volume imbalances are typically tracked over multiple time frames to detect releases of different sizes.

Frequency of Monitoring:
Actions Required on Suspect Condition:
Comments:

☐ **Real Time Transient Model (SCADA / CPM)** – This method calculates a modeled set of pipeline conditions for comparison with the measured pipeline conditions. As with the Compensated Mass Balance technique, the pipeline is divided into a pre-defined number of segments based the availability of instrumentation and the desired level of sensitivity. As well, volumes balances are typically tracked over multiple time frames to detect releases of different sizes. This method requires the development of an extensive database of pipeline characteristics such as pipe length, diameter, thickness, composition, roughness, route topography, pump characteristics, valve characteristics, detailed fluid bulk moduli, viscosity, pump station pressure/flow control logic, etc. This method also requires an extensive amount of tuning during commissioning and after modifications to the pipeline.

Frequency of Monitoring:
Actions Required on Suspect Condition:
Comments:

☒ **Pressure/Flow Monitoring (SCADA / CPM)** – This method compares graphical trends of current and recent historical pressure and flow data for similar operating conditions. This method attempts to identify rates of change in pressure and/or flow that deviate form "normal operating conditions" for detection of releases.

Frequency of Monitoring: *Continuous via the SCADA system*
Actions Required on Suspect Condition: *Shutdown and close in pipeline. Make notifications to outside agencies and company personnel as required by company policy*
Comments: *The SCADA system is equipped with flow rate deviation alarms, pipeline pressure deviation alarms and high motor current alarms configured to activate during a rupture class leak.*

☐ **Acoustic Negative Pressure Wave (SCADA / CPM)** – This method utilizes high response rate/moderate sensitivity pressure transmitters to detect the negative pressure waves that are generated when a leak initiates. A rapid pressure drop and recovery indicates the possibility of a leak.

Frequency of Monitoring:
Actions Required on Suspect Condition:
Comments:

☐ **Statistical Analysis (SCADA / CPM)** – This technique statistically evaluates in near real time one or more flow parameters for the presence of patterns associated with a leak. For example, if the mean value for a volume imbalance statistically increases for a statistically extended time period, a leak may be indicated.

Frequency of Monitoring:

Actions Required on Suspect Condition:
Comments:

☐ **Other (Specify. Include attachments as necessary):**

Frequency of Monitoring:
Actions Required on Suspect Condition:
Comments:

1.6 ☒ **Internal Tracer Gas Injection & Monitoring (Area Manager / SCADA Group)**
Tools used (or available) for locating or confirming/the presence or absence of a leak when a "suspect condition" is encountered.

Frequency of Monitoring: *This tool is initiated by the Pipeline Maintenance Dept. on an as-needed basis.*
Actions Required on Suspect Condition:
Comments:

2 LEAK DETECTION ASSESSMENT

Provide the requested information in the space provided.

2.1 Pipe Segment Characteristics (Area Manager)

2.1.1 Length and Size of Pipeline:

Line Segment	Segment Length	Segment Diameter
Rocklin – Newcastle	*9.68 mi.*	*10"*
Newcastle – Clipper Gap	*11.67 mi.*	*6"*
Clipper Gap – Colfax	*12.32 mi.*	*10"*
Colfax – Woodchopper Springs	*56.83 mi.*	*8"*
Woodchopper Springs – 10x6 Reducer	*23.04 mi.*	*10"*
10x6 Reducer - Reno	*7.38 mi.*	*6"*

2.1.2 List Segment EFRDs (Trap-to-Trap)

See Mainline Valve Book

http://kmonline/engineering/products/manuals/pacific/valve/MLVB_North_in-serv.pdf

2.1.3 Type of Product Carried

Product Type: ☐ Crude ☒ Refined Product ☐ NGL ☐ CO2

Comments:

2.1.4 Current Throughput

Maximum Achievable Flowrate (BPH): *2500 bbl/hr*

2.2 The Pipeline's Proximity to an HCA (Pipeline Risk Analysis Group)

See the IAP database for HCA impact analysis. Identify the location of the IAP database. Include the filename and storage media type for any electronic files. If feasible, attach a copy of the HCA impact analysis results.

Line Segment	HCA Length	HCA % of Segment
Rocklin – Newcastle	*9.68*	*100%*
Newcastle – Clipper Gap	*11.67*	*100%*
Clipper Gap – Colfax	*10.08*	*82%*
Colfax – Woodchopper Springs	*38.54*	*68%*
Woodchopper Springs – 10x6 Reducer	*10.89*	*47%*
10x6 Reducer - Reno	*7.38*	*100%*

Description	Storage Location	Media Type	File-name
Facility Report (Potential HCA Impact Areas)	*http://opsportal/sites/IMPManual/IMP%20Manual/SFPP_North_Facility_HCAs.pdf*	*pdf*	

2.3 Time to Detect and Isolate Leak (Area Manager / SCADA Group)

Provide data on the swiftness of leak detection. At minimum, provide information for a full pipeline rupture and the "most likely" type of leak (i.e. based on specific risk types for the line section under review). Leak size may be expressed as a % of throughput.

Leak Date	Location of Leak (pipeline station or mile post)	Leak Size (bbls or % throughput)	Max Time To Detect/ Shutdown	Max Time to Isolate

Using the existing SCADA system, KM has detected actual rupture class leaks and shutdown and closed in the pipelines in less then 15 minutes. The SCADA system is equipped with flow rate deviation alarms, pipeline pressure deviation alarms and high motor current alarms configured to activate during a rupture class leak.

Does leak detection system include transient operation leak detection? *No*
Indicate approximate percentage of operation under transient conditions? *5%*
Indicate mechanisms that are available for isolating a leak (mark all that apply):

- ☐ Automated valve closure
- ☒ Human assisted valve closure
- ☒ Check valve
- ☒ Automated pump shutdown
- ☒ Local station shutdowns (independent of control center) including high motor amps, low suction psi, high discharge psi, etc.

2.4 Location of Nearest Response Personnel (Area Manager)

Identify location and maximum travel time from nearest manned facility or emergency response center to respond to a leak or rupture.

Location	Max. Travel Time	Approx. Distance (miles)
Rocklin Station (Rocklin – Donner Lake)	*1.6 hours*	*75 miles*
Reno Terminal (Donner Lake – Reno)	*1.25 hours*	*45 miles*

2.5 Leak History (Pipeline Safety Leak Database and Area Manager)

Identify the location of the leak incident reports including the filename and storage media type of any electronic data (include the KMEP risk model). If feasible, include copies of leak incident reports as attachments.

Description	Storage Location	Media Type	Filename
	CS Stars	*DATABASE*	

2.6 Risk Assessment Results (Pipeline Risk Analysis Group)

Identify the location of the risk analysis results data including the filename and storage media type for any electronic data including the Bass-Trigon Risk Model Software and results database. If feasible, include copies of the results output from the Bass-Trigon Software as an attachment.

Description	Storage Location	Media Type	File-name
CAP Documents	*http://kmonline/operations/products/manuals/IMP/C2_0_Continuing_Assessment_Plan.pdf*	*pdf*	

2.7 Abnormal Operating Conditions / Leak Detection Failures (SCADA / Area Manager)

Identify the location of Abnormal Operating Condition Reports including the filename and storage media type for any electronic files. If feasible, include copies of Abnormal Operating Condition Reports as an attachment. The reports should include the cause of the Abnormal Operating Conditions. Also, indicate the total number of Abnormal Operating Conditions for the previous calendar year.

Description	Storage Location	Media Type	Filename
	CS Stars		

Total number of Abnormal Operating Conditions: Time Period:
Do Abnormal Operating Conditions have a common cause (seasonal, batch related, etc)?

Have any leaks been discovered that were not detected by the SCADA/CPM leak detection system? If yes, include leak characteristics – size, duration, and detection corrective action. Include attachments as necessary.

2.8 Over/Short Program (Products Movement/ Area Manager)

Describe Over/Short Program as well as all other programs that have the goal of improving pipeline over/short performance, measurement, line balance, or leak detection. For each program include the following:

(1) Identify data source (SCADA, other databases, field meter tickets, etc.):

The data for O/S Monitoring Programs(Hourly, Weekly and Monthly) is sent by field SCADA operators to the Orange Control Center via Teletype. This data automatically populates a database that is used to generate stream sheets. O/S monitoring data is taken from stream sheets.

(2) Specify the frequency of analysis and time period over which data are analyzed/ reconciled (hourly, daily, weekly, monthly):

For leak detection/identification purposes, hourly O/S data are analyzed on an hourly basis. In addition, for purposes of identifying measurement deviations, O/S data are evaluated over weekly and monthly time frames.

(3) Describe actions required for a suspect condition (see Section 1.4 of this form):

Please refer to section 1.4 of this document.

(4) Specify the thresholds for shutdown and other actions as well as the rationale/justification for the thresholds:

Hourly O/S Monitoring:

There is not a specific shutdown threshold for Hourly O/S Monitoring. By policy, the Controller is required to investigate (verify O/S data, etc.) any O/S that cannot be explained by current pipeline operating conditions. If after investigation, the O/S suspect condition still exists, the Controller is required to shutdown the pipeline.

Weekly O/S Monitoring:

Weekly O/S Monitoring is primarily used to identify mechanical (and possibly clerical) reasons for over/short deviations.

Weekly percent O/S data are graphed against two control limits (0.05% and 0.10%). There are four trigger points where operations personnel are required to initiate steps to resolve an over/short deviation.

(1) Anytime the weekly % over/short data trend in the same direction for 5 consecutive weeks, operations personnel are required to take correction action.

(2) Anytime the weekly % over/short data are outside the 0.05% control limit for 5 consecutive weeks operations personnel are required to take correction action.

(3) Anytime the weekly % over/short data are outside the 0.10% control limit for 2 consecutive weeks operations personnel are required to take correction action.

(4) Anytime the weekly % over/short data are outside the 0.10% control limit (for 1 week) operations personnel are required to perform an assessment.

Typically, assessments are mostly clerical in nature. The assessment may include review of items such as meter tickets, calculation of meter factors, application of meter factors, proving reports and inspection of manifold DB&B valve tattletales.

Corrective actions typically require actions beyond an assessment including tasks such as prover ball removal and inspection, meter blade inspection, strainer basket inspection, etc.

The +/- 0.05% and 0.10% control limits were established by the KMEP measurement team because these values were appropriate for the KMEP pipeline system in terms of filtering out normal noise such as the packing and unpacking of batched pipelines and yet sensitive enough to detect abnormal operations. As well, the +/- 0.05% and 0.10% control limits fall within the range of control limits commonly used within the pipeline industry.

Monthly O/S Monitoring:

Periodically, cumulative monthly barrel O/S data are graphed. The measurement analyst uses the graphs to monitor longer term trends and identify problems via trend changes or inflection points in the graphical data. The monthly graphs are a tool used by the measurement analyst but arte not required by KMEP policy or procedure.

Over/Short Conference Calls and Measurement Audits:

The measurement analyst coordinates a monthly conference call with the products movement director, operations managers, operations directors and systems engineering to address any abnormal over/short conditions.

At least once per year, the measurement analyst conducts an audit inspection of each pipeline measurement system. The completed Measurement Audit inspection is kept on file for five years. A copy of the measurement audit is submitted to the Area Manager.

2.9 Leak Detection System Testing (SCADA Group)

Identify the location of (for each document, if feasible, attach a copy of the document):

Description	Storage Location	Media Type	Filename
(1) The most recent Leak Detection System Test	*N/A*		
(2) The Leak Detection System Test Policy	*L_O&M 279 - CPM LEAK DETECTION*		
(3) The SCADA Pipeline Operator Leak Detection Training Policy	*(Operations Training Class and OQ Training Manual)*		
(4) The Instrumentation Calibration Policy	*L-O&M*		

(1) Date of most recent Leak Detection System test: *N/A*

(2) Test method (product removal, meter factor change, etc.): *N/A*

(3) What test methods are approved? *N/A*

(4) Corrective action required (yes/no)? *N/A*

(5) Planned date of next test: *N/A*

(6) What is the frequency of Leak Detection System testing? *N/A*

(7) What pipeline system modifications trigger a new Leak Detection System test? *N/A*

(8) What is the frequency of Leak Detection System training for SCADA Pipeline Operators?

ORCC: Each controller has Initial OQ Training. Abnormal Operations Training twice per year and must re-OQ once every 3 years.

Field SCADA Operators: Initial OQ Training. Abnormal Pipeline Operations Training once per year. Operator OQ once every 3 years. Tabletop leak simulation and response with local responder (fire department) is completed once.

(9) What is the frequency of calibration for instruments critical to leak detection? *Annually*

(10) Describe KMEP calibration policy: *See Operations Manual*

3 Desired Capabilities and Improvements

Describe any suggested Leak Detection System enhancements required to meet the Section 4.3 Response basis of 15 minutes. Include attachments as necessary.

For this line, providing Line Riders with all-terrain vehicles would improve the time to discover the location of a leak by covering the rough terrain more quickly and reduce pipeline down-time while the Line Riders verify the line is okay.

4 Potential Costs and Benefits

Provide a brief discussion of the estimated costs and benefits of the leak detection enhancements suggested above. Verify this with Manager of Risk Engineering on the risk reduction conclusions drawn from the Analysis and rerun the release scenarios if response time if found to be greater than 15 minutes.